16. The recombinant kinase of claim 15 wherein said nonvertebrate organism is an insect.

17. The recombinant kinase of claim 15 further characterized by having a specific activity of at least 20 U/mg (1U = 1μmol/min) for all natural deoxynucleosides.

18. The recombinant kinase of claim 15 further characterized by having a specificity constant of >10,000 $M^{-1}s^{-1}$ for all natural deoxynucleosides.

19. The recombinant kinase of claim 15 further characterized by having a half-life of ≥50 h in Tris buffer with 5 mM $MgCl_2$ and of ≥25 h in water at 37°C.

20. The recombinant kinase of claim 15 further characterized by having a temperature optimum between 40° and 60°C.

21. The recombinant kinase of claim 16 wherein said insect is *Drosophila melanogaster*.

22. A DNA sequence encoding a kinase from *Drosophila melanogaster*, said kinase characterized by:

    a. remaining stable during the synthesis of nucleoside monophosphate in the absence of stabilizing SH reagents and stabilizing proteins, and

    b. accepting all natural deoxynucleosides.

23. The DNA sequence of claim 22 wherein said kinase is further characterized by having a specific activity of at least 20 U/mg (1U = 1μmol/min) for all natural deoxynucleosides.

24. The DNA sequence of claim 22 wherein said kinase is further characterized by having a specificity constant of >10,000 $M^{-1}s^{-1}$ for all natural deoxynucleosides.

25. The DNA sequence of claim 22 wherein said kinase is further characterized by having a half-life of ≥50 h in Tris buffer with 5 mM $MgCl_2$ and of ≥25 h in water at 37°C.

a' cont.

26. The DNA sequence of claim 22 wherein said kinase is further characterized by having a temperature optimum between 40° and 60°C.

27. The DNA sequence of claim 22, said sequence characterized by hybridizing to a primer having a sequence selected from the group consisting of SEQ ID NOs 2 to 8.

28. A vector comprising a DNA sequence and a promoter, said DNA sequence encoding a kinase from *Drosophila melanogaster*, said kinase characterized by:

    a. remaining stable during the synthesis of nucleoside monophosphate in the absence of stabilizing SH reagents and stabilizing proteins, and

    b. accepting all natural deoxynucleosides.

29. The vector of claim 28 wherein said kinase is further characterized by having a specific activity of at least 20 U/mg (1U = 1µmol/min) for all natural deoxynucleosides.

30. The vector of claim 28 wherein said kinase is further characterized by having a specificity constant of $>10{,}000\ M^{-1}s^{-1}$ for all natural deoxynucleosides.

31. The vector of claim 28 wherein said kinase is further characterized by having a half-life of ≥50 h in Tris buffer with 5 mM $MgCl_2$ and of ≥25 h in water at 37°C.

32. The vector of claim 28 wherein said kinase is further characterized by having a temperature optimum between 40° and 60°C.

33. The vector of claim 28 wherein said DNA sequence is further characterized by hybridizing to a primer having a sequence selected from the group consisting of SEQ ID NOs 2 to 8.

34. A host transformed with a vector comprising a DNA sequence and a promoter, said DNA sequence encoding a kinase from *Drosophila melanogaster*, said kinase characterized by:

a' cont.

a. remaining stable during the synthesis of nucleoside monophosphate in the absence of stabilizing SH reagents and stabilizing proteins, and

b. accepting all natural deoxynucleosides.

35. The host of claim 34 wherein said kinase is further characterized by having a specific activity of at least 20 U/mg (1U = 1µmol/min) for all natural deoxynucleosides.

36. The host of claim 34 wherein said kinase is further characterized by having a specificity constant of $>10{,}000\ M^{-1}s^{-1}$ for all natural deoxynucleosides.

37. The host of claim 34 wherein said kinase is further characterized by having a half-life of $\geq$50 h in Tris buffer with 5 mM $MgCl_2$ and of $\geq$25 h in water at 37°C.

38. The host of claim 34 wherein said kinase is further characterized by having a temperature optimum between 40° and 60°C.

39. The host of claim 34 wherein said DNA sequence is characterized by hybridizing to a primer having a sequence selected from the group consisting of SEQ ID NOs 2 to 8.

40. A method for the production of a recombinant kinase, said kinase characterized by remaining stable during the systhesis of nucleoside monophosphate in the absence of stabilizing SH reagents and stabilizing proteins, accepting all natural deoxynucleosides, and being obtainable from cells of a non vertebrate organism, said method comprising:

a. isolating the coding sequence of Dm-dNK,

b. cloning a structure gene in an expression vector with inducible promoters,

c. transforming said expression vector in an *E. coli* host, and

d. expressing said Dm-dNK sequence in said host by induction.

41. The method of claim 40 wherein said nonvertebrate organism is an insect.

42. The method of claim 40 wherein said recombinant kinase is further characterized by having a specific activity of at least 20 U/mg (1U = 1µmol/min) for all natural deoxynucleosides.

43. The method of claim 40 wherein said recombinant kinase is further characterized by having a specificity constant of >10,000 $M^{-1}s^{-1}$ for all natural deoxynucleosides.

44. The method of claim 40 wherein said recombinant kinase is further characterized by having a half-life of ≥50 h in Tris buffer with 5 mM $MgCl_2$ and of ≥25 h in water at 37°C.

45. The method of claim 40 wherein said recombinant kinase is further characterized by having a temperature optimum between 40° and 60°C.

46. The method of claim 41 wherein said insect is *Drosophila melanogaster*.

47. A method for the production of a nucleoside monophosphate comprising phosphorylating a nucleoside using a recombinant kinase, said kinase characterized by:

a. remaining stable during the synthesis of nucleoside monophosphate in the absence of stabilizing SH reagents and stabilizing proteins,

b. accepting all natural deoxynucleosides, and

c. being obtainable from cells of a nonvertebrate organism.

48. The method of claim 47 wherein said nonvertebrate organism is an insect.

49. The method of claim 47 wherein said recombinant kinase is further characterized by having a specific activity of at least 20 U/mg (1U = 1µmol/min) for all natural deoxynucleosides.

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50. The method of claim 47 wherein said recombinant kinase is further characterized by having a specificity constant of $>10{,}000\ M^{-1}s^{-1}$ for all natural deoxynucleosides.

51. The method of claim 47 wherein said recombinant kinase is further characterized by having a half-life of $\geq$50 h in Tris buffer with 5 mM $MgCl_2$ and of $\geq$25 h in water at 37°C.

52. The method of claim 47 wherein said recombinant kinase is further characterized by having a temperature optimum between 40° and 60°C.

53. The method of claim 48 wherein said insect is *Drosophila melanogaster.*

Respectfully submitted,

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